

## **Provision of specific usage related information directly to a Computer User.**

The present invention relates to a method of providing usage related information directly to a computer user.

5    The potential of the internet to provide access to large quantities of useful information is well known. The increasing growth of the internet, however, means individual users searching for information of particular interest often have to trawl through several poor quality or irrelevant websites before they locate the best sources of information. Search engines designed to assist locate relevant information often produce hundreds of results, only a few of which are of  
10   particular interest to the user.

Several classification websites exist which classify information sources into topic areas and provide access via a hierarchical menu system. However, due to the large quantity of information available there are often hundreds of topics and sub topics of no interest to the user but which make it more difficult to find desired information. Additionally, a user  
15   searching through the menu system of a classification website will often have to go back and forth several times between the menu system and the website being visited. This can be particularly inconvenient when the new site is loaded over the top of the classification website either in a new or an existing browser window.

Often internet users are unaware of websites, information or resources that are available  
20   through the internet that would be useful or interesting to them. The internet is constantly evolving and users find it difficult to keep on top of the array of new information.

Users can improve their access to the internet by defining favourites lists containing bookmarks organised where appropriate by topic. However, such lists are of little benefit when the user is using a different computer or when the lists are deleted, for example, when a  
25   new operating system is installed or an old one reinstalled. Furthermore, favourites lists still require extensive searching and browsing to set up properly, and to maintain. This is inconvenient and results in different users with similar internet usage patterns spending large amounts of time repeating the searches etc. that the others may already have carried out.

The present invention seeks to provide a method of providing usage related information directly to a computer user, which overcomes or at least mitigates these problems.

According to the invention there is provided a method of providing usage related information directly to a computer user, the method comprising: providing a dedicated user interface for  
5 internet usage by a computer user; monitoring the internet usage of the computer user through the dedicated user interface; identifying information relevant to the internet usage of the computer user; modifying the dedicated user interface dependent on the internet usage of the user, to provide access to the identified information.

Preferably on a user accessing an internet site, the identified information includes information  
10 relating to at least one other internet site, from at least one menu defined by another user.

The or each menu may be selected as a source of user information because the or each selected menu also includes information related to the accessed internet site.

The accessed internet site may contain at least one link to a further linked internet site, and the or each menu may be selected as a source of user information because the or each selected  
15 menu also includes information related to the or at least one linked internet site.

The other user may have a usage history and the or each defined menu may be selected as a source of user information because the usage history indicates that the other user has visited either the accessed site or a site linked from it.

Preferably details of historical internet usage by several computer users are stored in usage  
20 histories, including details relating to the information sources accessed by the computer users; the usage histories are analysed to determine the most commonly accessed sources of information; each of the most commonly accessed sources of information, for all users, is allocated to at least one topic; and the usage history of each computer user is analysed to identify which computer users have expressed an interest in the or each topic; wherein, the  
25 identified information includes information relating to any topic in which the computer user has expressed an interest.

Preferably the usage histories are analysed to determine the most commonly accessed topics and related resources are associated with the most commonly accessed topics; wherein, the identified information further includes the related resources associated with any topic in which the computer user has expressed an interest.

- 5 Access to at least some of the identified information may be provided via a hierarchical menu. A computer user may also be any internet or intranet user.

Embodiments of the invention will now be described by way of example only with reference to the attached drawings in which:

Figure 1 is a diagram of an internet management system according to a first embodiment;

- 10 Figure 2 is a representation of a user interface of a dynamic browser according to the first embodiment showing a menu hierarchy;

Figure 3 is a flow chart illustrating a method for providing user specific information, directly to the computer of the user according to the first embodiment;

- 15 Figure 4 is a flow chart illustrating alternative methods for providing a computer user with user specific information according to the first embodiment;

Figure 5 is a flow chart illustrating the load up sequence of the dynamic browser according to the first embodiment;

Figure 6 is a flow chart illustrating the operation of a profiling engine according to the first embodiment;

- 20 Figure 7 is a flow chart illustrating the operation of a resource gathering system according to the first embodiment;

Figure 8 is a diagram of an internet management system according to a second embodiment;

Figure 9 is a representation of a user interface of a dynamic browser according to the second

embodiment;

Figure 10 is a representation of the user interface of figure 9 showing a menu hierarchy;

Figure 11 is a flow chart illustrating a method for identifying, returning, and displaying site related information, directly to the computer of the user, according to the second  
5 embodiment;

Figure 12 is a flow chart illustrating a logic sequence followed by a server to return site related information according to the second embodiment; and

Figure 13 is a diagram illustrating alternative methods for providing a computer user with site related information according to the second embodiment.

10 In figure 1 a first embodiment of an internet management system is shown generally at 10. The management system 10 comprises a dynamic browser 12, a profiling engine 14, a resource gathering system 16, a user profiles database 18, a user data database 20, and a resources database 22. The databases are pictured separately in figure 1 to make the system easier to understand but it will be appreciated that the databases may be implemented in any  
15 suitable manner, for example, as a single database.

In figure 2 a user interface of the dynamic browser 12 is designated generally 30. The user interface 30 comprises the conventional features of a standard internet browser, such as navigation buttons, a view pane 32 and means for entering a URL 39. The dynamic browser 12 also includes a menu pane 34, for accessing a user specific dynamic menu, which includes  
20 a number of dynamic menu topics 36. The dynamic menu topics 36 typically define user dependent categories, which are of particular interest to the user, for example, news, politics or sport. Additionally the user interface 30 may also include means for completing an internet search using a conventional search engine or provide access to a web service such as holiday search or route planner.

25 In operation, when a user selects a dynamic menu topic 36 by moving a cursor over it, an initial sub-menu 38 is provided. Each initial sub-menu 38 lists a number of principal sub-

topics 40 or websites, which fall into the categories defined by the selected dynamic menu topic 36. Each initial sub-menu 38 may also be provided with means for completing searches relating to the category defined by the selected dynamic menu topic 36.

5 Moving the cursor over a website listed in the initial sub-menu 38 brings up a summary 42 of the website to which it refers. Selection of the website, for example by clicking a mouse button, loads the website into the view pane 32.

10 Selecting a principal sub-topic 40 listed in the initial sub-menu 38, by moving a cursor over it, brings up a secondary sub-menu 44 with a corresponding list of websites and/or lower level sub-topics 46 relating to the selected principal sub-topic 40. The websites listed in the secondary sub-menu 44 may be loaded into the view pane 32, summaries of the websites viewed, and/or additional sub-menus accessed, as described for the initial sub-menu 38. Hence, the sub-topics and websites form a conventional menu hierarchy. It will be appreciated that the hierarchy may include any suitable number of levels.

15 The menu pane 34 can also include dynamic short cuts to regularly accessed information such as internet mail web sites. The information contained within the menus is not restricted to websites and may contain any information such as news, weather or timetables.

20 In figure 3 a flow diagram illustrating a method for providing user specific information, directly to the computer of the user is designated generally at 50. The method begins when the user obtains access to the internet, and logs on to an internet management website using a conventional internet browser as shown at 52 in figure 4. The internet browser 52 may be any suitable browser for example Internet Explorer (RTM) or Netscape (RTM).

25 As seen in figures 3 and 4 once the internet management website is accessed, management software runs from the internet management website to load the dynamic browser 12 to replace the conventional internet browser 52 of the user. The management software may be implemented in any suitable form, for example, by using a Java applet or Macromedia Flash.

The user operates the dynamic browser 12, in place of the conventional internet browser 52, to request information from the internet. The user may, for example, load websites by typing

in their URL directly, carry out internet searches using conventional search engines, or select information/websites using the user specific menu system.

Usage data relating to the information requested by the user is then sent to the profiling engine 14 for analysis and addition to a user profile. Typically, for example, the usage data will include a copy of any URL entered or selected and/or any search term used or any other menu information, e.g. its category, or its position within the sub menus (schematic data).

Any website or other information requested loads directly into the view pane 32 of the dynamic browser 33 that can be opened automatically if the user chooses. The information requested may, for example, be a news article, an online catalogue page, information relating to a team club or society or any other information available on the internet.

The profiling engine 14 interprets the usage data and, associates it with a topic or group of topics using the resource gathering system 16. The resource gathering system identifies any additional relevant related information which may be of interest to the user and modifies the dynamic browser 12, and in particular the dynamic menu and dynamic shortcuts to provide easy access to the identified information. If no relevant information is identified or the dynamic menu already contains links to the identified information then the browser is not updated. Any such update is automatic and does not require the user to refresh the dynamic browser 12. Conventional browsers cannot be refreshed or updated. They are fixed, and only the content within them e.g. HTML pages can be refreshed. The dynamic browser allows itself to be altered, automatically.

The internet management system 10 then continues to monitor the user's activity, respond to requests for information, and make appropriate modifications to the user interface 30 of the dynamic browser 12 until the user ends the internet session.

The loading sequence for the dynamic browser is now described in more detail with reference to figure 5 in which a flow diagram illustrating the sequence is designated generally at 54.

When loading of the dynamic browser 12 is initiated the management software begins by opening a first browser window with all the conventional tool bars turned off. The first

browser window is then resized to fit into a first section of the screen of the computer, which the user is using to access the internet. A second browser window is then opened, with the conventional toolbars switched off, and resized to fit into a second section of the screen of the user. The combination of the two browser windows forms an empty browser with the first  
5 browser window corresponding to an empty menu pane and the second browser window corresponding to an empty view pane.

The dynamic browser could alternatively open in the existing window and simply replace the conventional toolbars with the internet management system rather than requiring two windows. The dynamic browser could be loaded as a floating menu/browser that can sit any  
10 where on the screen and does not necessarily require a resized browser pane.

The dynamic browser could also open in a new window with all conventional toolbars switched off. A frame within the page or an IFrame could be used to create the browser in browser effect. This would allow the menu system to open up over the IFrame creating the impression of a conventional browser.

15 It will be appreciated, however, that any suitable number of windows of any suitable size or configuration could be used. It will be further appreciated that those skilled in the art could achieve a similar effect by opening a single browser window of suitable size and dividing it into sections using frames, tables and/or any other suitable means.

A downloadable application will also be provided for users, this will allow greater  
20 functionality and smoother operation than the web-based system. It is anticipated that users who become acquainted with the web-based system will want to enhance the systems operation by downloading the internet management system application.

If the user is a new user the internet management system 10 creates a new user account, determines and logs the IP address of the user, and places a conventional cookie on the  
25 computer of the user. The new user account is provided with an associated user profile in the user profile database 18. The internet management system 10 then configures the empty browser to form the dynamic browser 12 by including access to information most commonly required by users as determined by the resource gathering system 16. A generic dynamic

menu is added to the empty menu pane and a generic website is loaded into the empty view pane. Alternatively the website loaded into the view pane may be a site designated as a homepage by the user, using conventional means. The user might also be offered the option of logging in securely using a user name and password.

- 5 If the user is an existing user the internet management system 10 locates the user profile and any user specific settings and preferences associated with the existing user via the profiling engine 14. The empty browser is then configured to form the dynamic browser 12 by including access to information specific to the user. The user specific dynamic menu is added to the empty menu pane and a website loaded into the empty view pane dependent on user  
10 preferences.

The dynamic browser 12 is then sent to the computer of the user via the internet using suitable means, for example a TCP/IP open live connection.

- In figure 6 a flow diagram illustrating the operation of the profiling engine is shown generally at 60. In operation the profiling engine 14 receives information relating to the internet usage  
15 of any number of users from their corresponding dynamic browsers. The profiling engine 14 analyses the usage information received and associates each item of information with the specific user to which it relates.

- The information associated with each user is added to a user specific usage history. Each usage history is used to re-generate the user profile, for the corresponding user, to take into  
20 account any new interests.

The usage histories for all users are regularly analysed to determine the most commonly accessed sources of information. The most commonly accessed information sources are compiled into a list. Human operators regularly review the list and allocate each information source in the list to at least one topic, beginning with the most commonly accessed sites.

- 25 Once an operator has allocated an information source to a particular topic, a rule is created which links the particular topic to individual users in dependence on a set of operator specified usage data or known topics of interest.



For example, the preferences could be configured such that if information sources within a topic area are visited, by a particular user, more than a specified number of times within a specified period, and the topic is not an identified interest, then the topic is classed as a new interest. Alternatively, or additionally the preferences could be configured such that if the user accesses information from a source allocated to a topic, which is not identified as an interest, a new corresponding menu link could be added to the dynamic menu. If the new menu link is subsequently used then the topic is confirmed as being an interest.

Similarly the preferences could be configured such that if a topic for which a menu link exists is not accessed for a specified period of time then the topic is classed as being of no interest and the menu link removed from the dynamic menu.

When a new interest area is identified for a particular user, the profiling engine 14 uses the resource gathering system 16 to identify relevant information sources related to the new interest area. The information identified is then sent to modify the user interface of the dynamic browser of the user to provide access to the newly identified information. A new dynamic menu topic is provided for the interest area, the dynamic menu topic being populated with a hierarchy of relevant sub-topics, links to the newly identified information sources, website summaries and the like. If no new interest area is identified then no modification is made to the dynamic browser.

The Profiling Engine described in Figure 6 incorporates data mining to conduct some of the profiling. This data mining will identify statistical similarities between users which can then be used by operators to create more rules linking historical usage to identified topics. If a user has looked at a large number of subcategories of a general heading such as cars, the profiling engine will identify cars as an interest area. It might then create a rating hierarchy for the sub categories that the user was looking at. This information again provides operators with more criteria to create rules with. This data will also be used by the resource gathering system.

In figure 7 a flow diagram illustrating the operation of the resource gathering system 16 is shown generally at 70. Initially, the resource gathering system 16 receives topics or interest

areas from the profiling engine 14 via the user data database 20 or the user profile database 22. Related resources are then identified for the topics or interest areas using at least one resource gathering process.

5 A first resource gathering process includes ascertaining the most commonly accessed topics or interest areas and compiling them in a list. Human operators regularly review each topic or interest area in the list starting with the most commonly accessed. For each topic or interest area the human operators determine the most relevant related information sources by carrying out searches based on the topic or interest area and assessing the relevance any information sources found during the searches. The most relevant related information sources are then  
10 identified as related resources for the topic or interest area being reviewed.

A second resource gathering process includes, for each topic or interest area, analysing the usage histories of users for which corresponding interest areas have been identified. In this manner common usage patterns are identified for each topic or interest area. The usage patterns contain details of information sources, which are most commonly accessed by users  
15 with a particular interest. The information sources referred to in the common usage patterns are then identified as related resources for the corresponding topic or interest area.

A third resource gathering process includes obtaining details of information sources previously allocated to each topic or interest area by the profiling engine 14, and identifying those information sources as being corresponding related resources.

20 Once identified, the related resources are prioritised, with the most relevant and highest quality resources being given the highest priority. The related resources are linked with the corresponding topic or interest area. Details of the related resources for each topic or interest area are then stored in the resources database 22. Data relating to high priority related resources, for each topic or interest area are sent to update the dynamic browser of any user  
25 accessing that topic or interest area.

The internet management system 10 including the profiling engine 14 and the resource gathering system 16 operate substantially continuously. Hence, in operation, when a user accesses a particular topic or interest area via the dynamic menu of a corresponding dynamic

browser; access is provided to the most up-to date related resources. If a new interest is identified for a user then the dynamic menu of the corresponding dynamic browser is automatically updated to include access to related resources for that interest.

5 A second embodiment of an internet management system will now be described, by way of example, only. It will be appreciated that although separate embodiments are described the specific features of each embodiment could potentially be used in addition to or as an alternative to the features described for the other embodiment.

In summary, the second embodiment allows menus defined by a user to be made available to other users dynamically. If, for example, a first user 'A' saved a particular URL,  
10 "http://www.news1.co.uk", to a favourites menu, which is named 'My News', the contents of the 'My News' menu is potentially made available to other users accessing the same website. Hence, user A's 'My News' menu would be displayed to other users in a Dynamic menu section of the user interface. Where several menus have been defined for a specific website, the choice of which menus and/or menu topics to make available is determined by different  
15 metrics. Furthermore, when the menu of a particular user is dynamically displayed to another user the contact details of the user that created the menu (user A in the example) can be either displayed within the menu or withheld in dependence on user preferences.

A user interface tool is provided for working in conjunction with either a custom or an existing internet browser such as Microsoft Internet Explorer (IE), Mozilla Firefox or Opera.

20 A menu system is provided to allow users to store their favourite website (URL) addresses in a similar manner to the favourites menus in existing browsers. The tool allows users to store their URL's to menus and sub menus, which they can create or delete. Functionality is given to the user to allow them to create and craft their bookmarks into neatly organised collections of URL's. Supplementary information sources such as XML, news feeds, access to news  
25 groups, radio, web TV and dedicated search boxes can also be added alongside the URL favourite menus.

Users' favourites menus are saved to their local PC, as with existing bookmarks, and also to a central server both to provide a backup of the users' favourite links and to provide a central

knowledge base of favourites menus. This allows a specific user to access their favourites in the event the bookmarks stored on their PC is lost or alternatively when accessing the internet from a different PC. It further allows the system to provide a community of users with access to each others favourites menus / bookmarks dynamically depending on the requirements of the individual user and / or the nature of their use.

The second embodiment will now be described in more detail with reference to figures 8 to 13 in particular. Throughout the description the term 'favourites menu' is used. It will be appreciated, however, that the term favourites menu is intended to include any user defined menu, for example, menus including bookmarks to websites newsgroups or the like.

In figure 8 the second embodiment of an internet management system is shown generally at 110. The management system 110 comprises a dynamic browser 112, a storage and profiling engine 114, a resource gathering system 116, a users' historical internet usage database 118, and a user menus database 120. The databases are pictured separately in figure 8 to make the system easier to understand but it will be appreciated that the databases may be implemented in any suitable manner, for example, as a single database.

In figure 9 a user interface of the dynamic browser 112 is designated generally 130. The user interface 130 comprises the conventional features of a standard internet browser, such as navigation buttons, a view pane 132 and means for entering a URL 139, as described for the first embodiment. The dynamic browser 112 also includes a menu pane 134, for providing a current user with access to menus containing user selected favourite bookmarks. The browser 112 is further provided with a dynamic menu 147 for providing access to the favourites menus of at least one further user, depending on the URL the current user is accessing.

The menu pane 134 can contain any number of user defined topics 136. The topics 136 typically define user dependent categories, which are of particular interest to the user, for example, news, politics or sport. Additionally the user interface 130 may also include means for completing an internet search using a conventional search engine or provide access to a web service such as holiday search or route planner. The dynamic menu 147 will appear when the system identifies other users' resources that are related to the current URL.

In figure 10 the operation of the favourites menus can be seen. The operation of the menus is generally similar to that of the first embodiment as described below.

When a user selects a menu topic 136 by moving a cursor over it and clicking, an initial sub-menu 138 is provided. Each initial sub-menu 138 lists a number of principal sub-topics 140 or websites, which fall into the categories defined by the selected menu topic 136 as  
5 determined by the user. Each initial sub-menu 138 may also be provided with means for completing searches relating to the category defined by the selected dynamic menu topic 136.

Moving the cursor over a website listed in the initial sub-menu 138 brings up a summary 142 of the website to which it refers. Selection of the website, for example by clicking a mouse  
10 button, loads the website into the view pane 132.

Selecting a principal sub-topic 140 listed in the initial sub-menu 138, by moving a cursor over it, brings up a secondary sub-menu 144 with a corresponding list of websites and/or lower level sub-topics 146 relating to the selected principal sub-topic 140. The websites listed in the secondary sub-menu 144 may be loaded into the view pane 132, summaries of  
15 the websites viewed, and/or additional sub-menus accessed, as described for the initial sub-menu 138. Hence, the sub-topics and websites form a conventional menu hierarchy. It will be appreciated that the hierarchy may include any suitable number of levels.

The menu pane 134 can also include dynamic short cuts to regularly accessed information such as internet mail web sites. The information contained within the menus is not restricted  
20 to websites and may contain any information such as news, weather or timetables.

In operation, the favourites menus of each user of the system 110 are stored in the user menus database 120 by the storage and profiling engine 114, for future access, by other users, via the corresponding dynamic menus 147, depending on the site accessed.

In figure 11 a flow chart illustrating a method for returning dynamic menus to a user is shown  
25 generally at 150. In operation, the method identifies, returns, and displays, site related information for access by the user, via the dynamic menu 147.

Initially the user selects a particular URL for loading into a browser. At this stage the process splits into two substantially parallel branches. In the first branch the browser attempts to retrieve and display the site associated with the URL in a conventional manner.

Substantially simultaneously, in the second branch, a copy of the accessed URL is sent to a server for further processing. The server attempts to identify the most appropriate favourites menus and/or menu topics, relating to the URL, for subsequent return for display in the dynamic menu 147 of the associated user. Generally the menus identified correspond to the favourites menus of a group of other users who have either previously selected the accessed URL as a favourite. Alternatively or additionally, the menus identified correspond to the favourites menus of a group of users who have either selected related sites as favourites or who have accessed the same URL in the past.

When several menus are identified for return, the server generates a summary of the most commonly occurring URLs from the identified menus for subsequent display in the dynamic menu as a top related URLs menu. The server builds the relevant dynamic menus and returns them for display in the browser.

Metrics are applied to the returned menus to score them in order to ensure that only the most relevant are displayed in the dynamic menu 147 as seen in figure 12. Any suitable metrics may be used, for example, metrics based on the time the returned menus were last edited and the ratio of the number of URLs in a favourites menu to the number of sub-menus. Furthermore, when a group of users associated with a particular site is particularly large the users can be grouped into sub-groups of people who exhibit similar habits and these sub-groups may be used to identify the most relevant menus to return to a particular user.

In figure 12, the server process for identifying and returning menus to a user is shown in more detail generally at 154. The server process 154 forms the basis of the resource gathering system 116.

On receipt of the URL the server logs the URL and the time accessed in the historical usage database 118, via the storage and profiling engine 114. The server also determines if the accessed URL has previously been stored in any other user's favourites menu. If the received

URL has not previously been saved, analysis of the page is conducted for identifying any related menus. Initially any links to URLs contained within the requested page are screened to determine if any of the links have associated favourites menus. Any associated menus found are subsequently built into a single consolidated menu list based on the URL to which they are related, and ordered by popularity. Alternatively, the consolidated menu could be built in a conventional manner, or any other logical way. The consolidated list is then returned for display in the dynamic menu of the user accessing the received URL.

For example, if a user were to use a specific search engine to search for "Cabinets" then a particular URL returned may fail to yield any associate favourites menus. In this case, when the URL is accessed, the resulting page would then be analysed to identify the URLs contained within it. These URLs would be checked against the favourites menus stored in the user menus database 120 to identify any related menus. Any resulting menus would be scored and displayed to the user carrying out the search accordingly. When related menus are identified using page analysis an additional menu will appear in the dynamic menu 147 of the user, listing all the URLs in the page, which have related menus. Thus, the user is able to identify the best sites returned from a search, and hence find related information.

Similarly, if analysis of a particular page and the links within it fail to yield any associated favourites menus, the system goes on to analyse the historical usage data to determine if any other users have accessed the received URL. If any users accessed the received URL in the past, then any URLs which were subsequently accessed by the users, are analysed to identify any links or associated favourites menus. As described previously a metrics system is used to score and return only the most relevant menus.

If the server determines that the accessed URL has previously been stored in any other favourites menus, a list of the corresponding menus is returned. Metrics are applied to the list as described previously to narrow down the list to only the most relevant menus.

When several menus are identified for return, using any of the above identification methods, the server generates a summary of the most commonly occurring URLs from the identified menus for subsequent display in the dynamic menu 147.

It will be appreciated that the invention is not limited to a downloadable executable program but may also be run as a service from within a web page or alternatively as a downloadable installable additional toolbar for Internet Explorer or another internet browser.

5 In figure 13, for example, a diagram shows an alternative method by which the system 110 may be used to display the identified menus. Figure 13 corresponds generally to figure 4 for the first embodiment and the associated description is generally applicable.

The method begins when the user obtains access to the internet, and logs on to an internet management website using a conventional internet browser as shown at 152 in figure 13. Once the internet management website is accessed, management software runs from the  
10 internet management website to load the dynamic browser 112 to replace the conventional internet browser 152 of the user.

The user then operates the dynamic browser 112, in place of a conventional internet browser 152, to request information from the internet. The user may, for example, load websites by typing in a URL directly, carry out internet searches using conventional search engines, or  
15 select information/websites using the user specific menu system.

Usage data relating to the information requested by the user is then sent to the storage and profiling engine 114 for analysis and addition to a user historical internet usage data. Typically, for example, the usage data will include a copy of any URL entered or selected and/or any search term used or any other menu information, e.g. its category, or its position  
20 within the sub menus (schematic data).

Any website or other information requested loads directly into the view pane 132 of the dynamic browser that can be opened automatically if the user chooses.

The resource gathering system identifies any additional relevant related information which may be of interest to the user and modifies the dynamic browser 112, and in particular the  
25 dynamic menu section 147 and dynamic shortcuts to provide easy access to the identified information. If no relevant information is identified or the dynamic menu 147 already contains links to the identified information then the browser is not updated. Any such update



is automatic and does not require the user to refresh the dynamic browser 112. Conventional browsers cannot be refreshed or updated. They are fixed, and hence only the content within them such as HTML pages can be refreshed. The dynamic browser allows itself to be altered, automatically.

- 5 The internet management system 110 then continues to monitor the user's activity, respond to requests for information, and make appropriate modifications to the user interface 130 of the dynamic browser 112 until the user ends the internet session.

Any number of techniques can be used to provide access to the internet management system from a web based system to a downloadable full browser replacement.

- 10 Web based versions of the system are limited by the web based technologies in which they are implemented. Hence, alternatively, a dedicated tool bar addition to an existing internet browser could potentially provide improved access to the application, as it is fast and reliable and does not have the implementation problems associated with a web based system. Furthermore, it does not include the overheads of a full new browser implementation.

- 15 If a user is new the internet management system 110 creates a new user account, determines and logs the IP address of the user and places a conventional cookie on the computer of the user. It will be appreciated that this may be subject to any appropriate restrictions such as the new user completing certain acts, for example paying a fee, completing a registration process or the like. It will be appreciated that although the management system 110 is described as  
20 logging the IP address and placing a cookie, this is not essential. For example, the user may simply login with a user name and an associated password for authentication.

- The new user account is provided with a blank user profile in the user database 118. The internet management system 110 then provides access to the internet management system. A generic dynamic menu is added to the empty menu pane and a generic website is loaded into  
25 the empty view pane. Alternatively the website loaded into the view pane may be a site designated as a homepage by the user, using conventional means. The user might also be offered the option of logging in securely using a user name and password.

If the user is an existing user the internet management system 110 locates the user profile and any user specific settings and preferences associated with the existing user via the storage and profiling engine 114. The dynamic browser 112 is then configured by including access to the favourites menus, of other existing users as defined by them.

- 5 The dynamic browser 112 information is then sent to the computer of the user via the internet using suitable means, for example a TCP/IP open live connection, or an XML web service.

It will be appreciated that the storage and profiling engine 114 may also include a data mining facility for conducting profiling. The data mining facility helps to identify statistical similarities between users, which can then be used by the resource gathering system 116 to  
10 identify menus of information predominantly from users that have had similar usage to one another.